

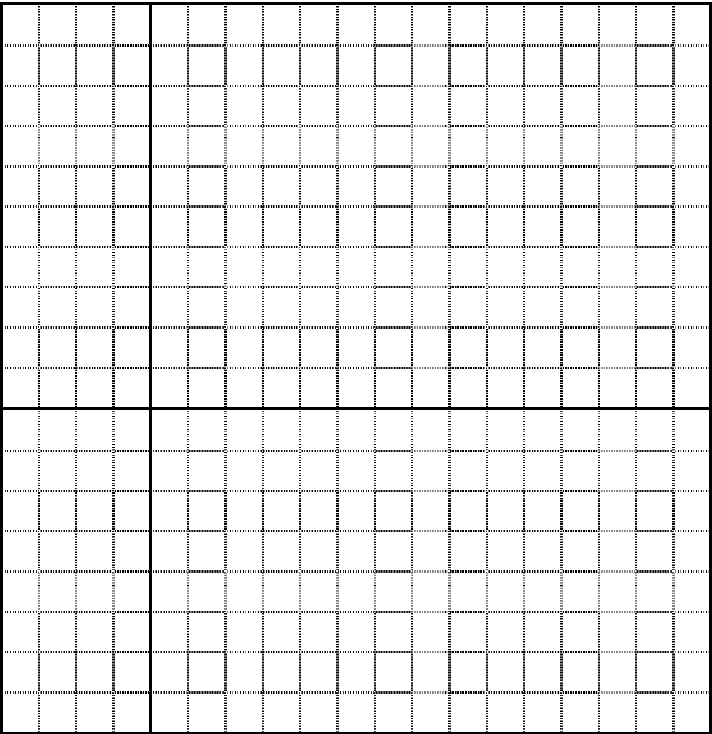
Define the following terms as they relate to quadratic functions:

- 1. Vertex
- 2. Axis of symmetry
- 3. Maximum
- 4. Minimum

Complete the table of values below and sketch the graph of  $y = x^2$ .

x	y
-3	
-2	
-1	
0	
1	
2	
3	

Complete a table of values for each of the following functions. Using different colours, sketch the functions on the grid to the right.



a.  $y = (x - 2)^2 + 1$

b.  $y = -(x + 1)^2 + 3$

**Conclusions:**

- a) What are the coordinates of the vertex of each of the functions?
- b) How do these values relate to the equation?
- c) What does the negative sign in function *b* do to the function?

x	y
5	
4	
3	
2	
1	
0	
-1	

x	y
2	
1	
0	
-1	
-2	
-3	
-4	

Complete the following chart:

FUNCTION	VERTEX	AXIS OF SYMMETRY	DIRECTION OF OPENING	MAX/MIN	MAX/MIN VALUE
$y = x^2$	(0,0)	$x = 0$	up	min	0
$y = 3(x - 2)^2 + 7$	(2,7)	$x = 2$			
$y = 4(x - 3)^2 - 5$					
$y = -(x - 1)^2$					
$y = -2x^2 - 6$					
$y = (x - 4)^2$					
$y = -(x + 2)^2 + 5$					
$y = \frac{1}{3}(x + 2)^2 + 6$					